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An extension of the known geographic distribution of *Sapajus cay* (Illiger, 1815) (Primates, Cebidae) in southwestern Brazilian Amazonia

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Abstract

We update the geographic distribution of *Sapajus cay* in the south-central, southeast, and western portions of Mato Grosso state, Brazil, and extend the distribution of this species north to the Cabixi River at the border with the state of Rondônia. Data were obtained from field surveys. We observed individuals of *S. cay* in highly fragmented forests which have been impacted by the deforestation over the past 50 years. This is an alarming situation for the conservation of the region's fauna.

Key words

New records; primates; distribution; Mato Grosso; New World monkey.

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Introduction

The distribution of Azara's Capuchin Monkey, *Sapajus cay* (Iliger 1815), as defined by Wallace (2008), includes the eastern half of Paraguay, northern tip of Argentina, southern Bolivia and central Brazil, where it occurs in Mato Grosso do Sul and the southern half of Mato Grosso do Sul. However, Silva Jr (2001) identified 15 localities further north in the state of Mato Grosso (Fig. 1). While this species has been observed elsewhere (Oliveira 2012), there have been no published records beyond the limits proposed by Silva Jr (2001) and Wallace (2008). Given these undefined distributional limits, we provide new data on the distribution of *S. cay* in southwestern Brazilian Amazonia, as well as its relative abundance at some of these newly recorded localities.

Methods

Our 8 new records were obtained during surveys of 8 forest fragments located in the hydrographic basins of the Jauru, Guaporé, and Cabixi rivers in southwestern Brazilian Amazonia of Mato Grosso state. The climate at these sites is classified as AW in the Köppen system (Alvares et al. 2014), which can be described as tropical hot and humid, with mean annual precipitation of 1330 mm. We include 2 additional records, from southeastern Goiás, in the Atlantic Forest biome and from a similar forest frag-

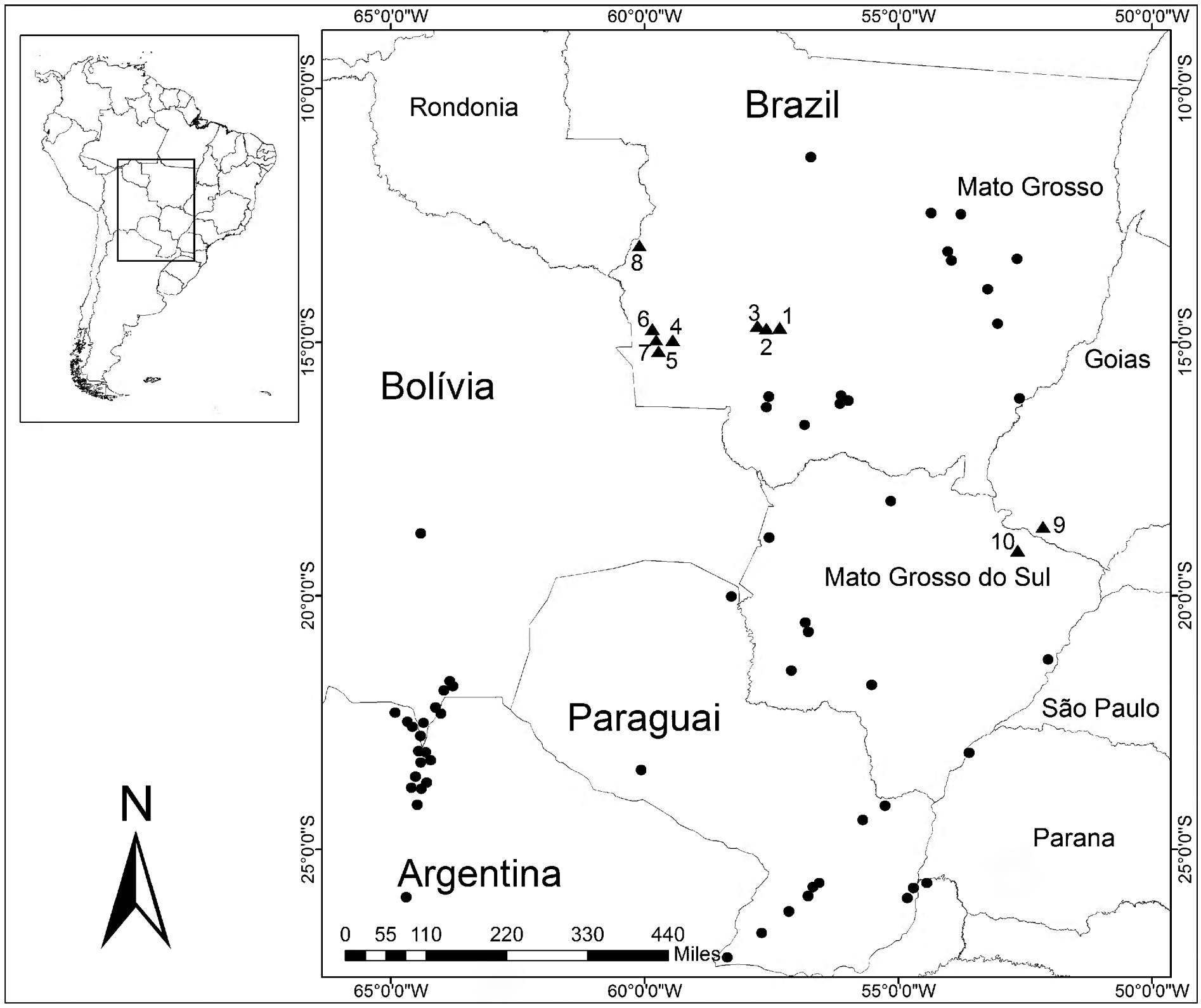

Figure 1. Geographic distribution of *Sapajus cay* according to Wallace (2008), with the localities recorded by Silva Jr (2001) shown as black circles and the sites surveyed during the present study as stars (numbered as in Table 1) (datum: South American).

ment in northeastern Mato do Grosso do Sul (Fig. 1).

At sites 1, 2, and 3 (Table 1), the vegetation is characterized as seasonal semi-deciduous forest (RADAMBRASIL 1978). Site 4 is located on the banks of Guaporé River, in an area dominated by stands of Buriti Palms (*Mauritia flexuosa* L), with sparse trees and areas of shrubby and grassy vegetation. This locality is subject to flooding during the wet season, and is surrounded by cattle ranches.

Site 5 is approximately 130 km south of the urban area of Vila Bela da Santíssima Trindade. This area is adjacent to the Serra Ricardo Franco State Park, and near the Verde River, a tributary of the Guaporé, on the border with Bolivia. The predominant vegetation in this area is open rainforest with evidence of selective logging.

Sites 6 is located on the Alegre River and site 7 at the Pousada Paço das Onças, on the right bank of the Guaporé River. Both sites had small creeks, annually flood, and were dominated by riparian vegetation with medium-sized to large trees. The surrounding area is dominated by cattle pasture, which is the main economic activity in the area. Given its proximity to the city of Vila Bela da Santíssima Trindade, site 6 is subject to constant human intervention, whereas site 7 belongs to a hotel, which receives tourists during most of the year (for both ecotourism and fishing trips), and is located on the border with Bolivia.

Site 8 is in the municipality of Comodoro (Mato Grosso state), which neighbors Cabixi in the Brazilian state of Rondônia, to the north. This area is on the left bank of the Cabixi River, and encompasses an extensive tract of forest, which is contiguous with a reserve that stretches as far as the Guaporé River. While this area of forest is adjacent to the river, it is not affected by the annual flood pulse, and remains dry throughout the year. The vegetation is composed of medium- to large-sized trees, and several abandoned logging roads can be found in the interior of the forest. Plantations of maize, soybean, and sorghum dominate the surrounding area. The forest and plantations are separated by a road that provides access to the neighboring properties. The vegetation is clearly influenced by the Amazon forest, as attested by the relatively large size of the trees.

Sites located in Goiás (site 9) and Mato Grosso do Sul (site 10) states have seasonal semi-deciduous forests as main vegetation type (RADAMBRASIL 1978).

Data were collected in line transect surveys. At sites

Table 1. New records of *Sapajus cay* from southwestern Mato Grosso, Brazil. The size of the forest fragment, sighting rate per 10 km walked, and biome are given for each site. Abbreviations (states) GO = Goiás; MT = Mato Grosso; MS = Mato Grosso do Sul; (observers) ACG = A.C. Gusmão; RRO = R.R. Oliveira; FRM = F.R. Melo.

Record/ site	State	Locality	Latitude (S)	Longitude (W)	Fragment size (ha)	Observer	Date	No. of individuals	Sighting rate (ind./10 km)	Biome
1	MT	Fazenda Bandeirantes, mun. of Araputanga	15°25′43.4″	058°24′09.5″	47.0	ACG	11-III-2014	5 adults	1.2	Cerrado
2	MT	Fazenda Bandeirantes, mun. of Araputanga	15°22′27.9″	058°23′02.0″	41.8	ACG	18-III-2014	6 adults, 4 young	0.8	Cerrado
3	MT	Fazenda Monte Fusco, mun. of Indiavaí	15°23′14.8″	058°25′51.8″	1411	ACG	10–18-IV-2014	62	3.0	Cerrado
4	MT	Buritizal, Rio Guaporé, mun. of Vila Bela da Santíssima Trindade	14°01′36.4″	060°20′23.0″	—	RRO	7-V-2012	4 adults	Present	Amazonia
5	MT	Pousada Paço das Onças, mun. of Vila Bela da Santíssima Trindade	14°01′36.4″	060°20′23″	—	RRO	3-IX-2012	6 adults	1.3	Amazonia
6	MT	Fazenda Monte Verde, mun. of Vila Bela da Santíssima Trindade	14°09′48.8″	060°22′01.1″	—	RRO	21-IX-2012	8 adults	3.9	Amazonia
7	MT	Margem rio Alegre, mun. of Vila Bela da Sant. Trindade	15°02′13.5″	059°58′16.2″	—	RRO	23-IX-2012	3 adults	0.3	Amazonia
8	MT	Fazenda Curitiba, mun. of Comodoro	13°30′50.3″	060°25′37.0″	>2000	RRO	24-IX-2012	6 adults, 4 young	1.4	Amazonia
9	GO	Fazenda São Miguel	16°08′19.4″	058°2957.9″	—	FRM	19-X-2014	5 adults, 4 young	—	Cerrado
10	MS	PCH Indaia Grande	15°03′07.5″	059°55′30.5″	—	FRM	29-XI-2014	7 adults	—	Cerrado

1, 2, and 3, the small size of the fragments allowed the use of sweep-type surveys covering the whole area of forest. In the larger fragments, transects were walked at a constant velocity of approximately 1.5 km/h (Peres 1999, Buckland et al. 2001). Additional records of *S. cay* were collected during random walks along the fragment, during which all the different strata were observed carefully. We walked a total of 87.3 km during our transects. The animals sighted in the field were photographed and filmed, and the species was identified based on the diagnostic characters and illustrations available in the literature (Silva Jr 2001, Wallace 2008).

Results

New records. See Table 1.

Identification. *Sapajus cay* can be diagnosed by the following traits (Silva Jr 2001): fur short and silky; head with 2 small, horn-shaped, black-brown tufts; forehead darker, with distinct eyebrows; throat, chest, and abdomen paler in color than the dorsum, which is grayish brown; frontal region of the proximal portion of the anterior members grayish brown with the lateral surfaces brown, and the medial surfaces orange-yellow; black extremities flecked with sparse white hairs; proximal surface of the tail yellow-while but inferior portion yellow-brown; tip of tail blackish brown.

Discussion

Silva Jr (2001) speculated that *S. cay* occurred further west of the sites identified in his study but had no conclusive evidence of this species being present near the Rondônia–Mato Grosso border. However, 1 of your records (site 8) confirms the presence of this species in this region. While additional surveys are needed in southern Rondônia to refine knowledge of the distribution of *S. cay* in this area, there is no evidence that this species occurs north of site 8. This leads us to suppose that the Cabixi River, which forms the Rondônia/Mato Grosso border in this region, may represent the northwestern limit of its geographic distribution. At sites 9 and 10 there are medium-sized rivers that probably are not an effective barrier to this species. However, we hypothesize that the Claro River, a larger tributary within the Paranaíba basin, represents a barrier to dispersal of this species to the southeast. Near the municipality of Jataí, we have found *Sapajus libidinosus* (Spix, 1823) on both banks of the Claro River.

Our new records of *S. cay* coincide broadly with the Amazon forest/Cerrado savanna transition zone in the northwest and with Cerrado/Atlantic Forest transition in the southeast. This species may also occur in typical Cerrado savanna further east, such as on the plateau of the Chapada dos Parecis. Understanding the ecological characteristics of this species, especially in the context of the high rates of deforestation, will be of considerable importance for its conservation in the long term. While our records extend the distribution of this species over a substantial area, this region has suffered intense deforestation and habitat fragmentation over the past 50 years, and the abundance of *S. cay* was relatively low in comparison with a second tufted capuchin, *Sapajus apella* Linnaeus, 1758 in a forest fragment in southwestern Amazonia (Gusmão et al. 2014).

Despite this scenario of deforestation, relatively large areas of forest where large populations of *S. cay* may still survive can still be found in indigenous lands, such as

Figure 2. Young *Sapajus cay* observed at site 2. Photograph by A.C. Gusmão.

the Sararé and Irantxe/Manoki reserves. Even though capuchins are one of the primary targets of indigenous hunters in these areas, these human settlements may still play an important role in the conservation of the region's primates, and the rest of its biota, in the long term.

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Authors' Contributions

ACG, RRO, ODS, and FRM collected the datal ACG, FRM, and MSF wrote the text; and ACG, FRM, and MSF made the analysis.

References

Alvares CA, Stape JL, Sentelhas PC, De Moraes JLG, Sparovek G (2014) Köppen's climate classification map for Brazil. Metereologische Zeitschrift 22 (6) 711–728. https://doi.org/10.1127/0941-2948/2013/0507

Buckland ST, Anderson DR, Burnham KPE, Laake JL (2001) Distance Sampling: Estimating Abundance of Biological Populations. Chapman and Hall, London, 416 pp.

Gusmão AC, Crispim MA, Ferronato ML, Silva Jr JS (2014) Primatas da Reserva Particular do Patrimônio Natural Água Boa, Cacoal, Rondônia, Brasil. Neotropical Primates 21 (2) 208–2011. https://doi.org/10.1896/044.021.0212

Oliveira R (2012) Beta diversidade de mamíferos na bacia do rio Guaporé, Amazônia, sudoeste de Mato Grosso, Brasil. Master's dissertation, Universidade do Estado de Mato Grosso, Cáceres, 71 pp.

Peres CA (1999) General guidelines for standardizing line-transect surveys of tropical forest primates. Neotropical Primates 7: 11–16.

RADAMBRASIL (1978) Projeto RADAMBRASIL. Vol. (1–34). Geologia, geomorfologia, pedologia, vegetação e uso potencial da terra. Departamento Nacional de Produção Mineral, Brasília, 507 pp.

Silva Jr JS (2002) Taxonomy of capuchin monkeys, *Cebus* Erxleben, 1777. Neotropical Primates 10: 29.

Silva Jr JS (2001) Especiação nos macacos-prego e caiararas, gênero *Cebus* Erxleben, 1777 (Primates, Cebidae). PhD thesis, Rio de Janeiro, Brasil. Universidade Federal do Rio de Janeiro, 377 pp.

Wallace RB (2008) *Cebus cay*. The IUCN Red List of Threatened Species. Version 2014.2. http://www.iucnredlist.org. Accessed on: 2016-9-23.